Does Helicobacter pylori infection increase the risk of adult-onset asthma?

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Abstract

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Keywords: allergic diseases, asthma, hygiene, *Helicobacter pylori*, therapy

Sir,

in a recent large (1664 cases, 6656 controls) population-based cohort retrospective study Wang et al. analyzed the possible link between *Helicobacter pylori* (*H. pylori*) infection and adult-onset asthma [1]. Both cases and controls were followed starting from *H. pylori* diagnosis to the date of asthma diagnosis or to the end of follow-up. The incidence proportion of asthma was considerably higher in *H. pylori* infection group than in uninfected subjects (log–rank test; $p < 0.001$) [1].

Late life-onset asthma differs from early life-onset asthma, because it is probably non-atopic and is accompanied by a prompt decrease in lung function [2]. Hence, there is a need to investigate on potential triggers and, in this context, infectious agents evoke a great interest.

In a recent meta-analysis, including a sample of 8852 subjects, the prevalence of *H. pylori* infection in the asthma population was 33.6% (518 of 1542), versus 37.6% (2746 of 7310) in the control population, without statistical difference (relative risk of *H. pylori* infection in the asthma population = 0.87, 95% CI:0.72-1.05, $p = 0.15$, random effects model) [3].

How to explain the opposite results obatined by Wang et al.? The authors analyzed the incidence of asthma, after a follow-up of seven year, in subjects with a new diagnosis of *H. pylori* infection. *H. pylori* infection is acquired in the first years of life and persists lifelong [4]. In clinical pratice, after the diagnosis *H. pylori* infection is treated to achieve its eradication [4]. The authors did not report data about a possible *H. pylori* treatment during the follow-up [1]. Hence, it is possible that someone could underwent to eradication treatment

and this would influence the outcome of the study. Another aspect to consider is that the methods for assessing *H. pylori* infection vary in sensitivity and specificity, which may result in misclassification of exposure to the bacteria: focusing on methodologies employed, some may indicate a previous contact with the microorganism (serological tests) while others an infection under way (^{13}C-urea breath test, histology, stool antigen test) [4]. The authors did not report data about the methods used to detect *H. pylori* infection [1].

Finally, both *H. pylori* infection and asthma have been associated with low socioeconomic status during childhood [4, 5]. Hence, in the multivariate analysis it is appropriate to adjust for socioeconomic factors as potential confounding factors. In the work by Wang et al. socioeconomic status has not been considered [1].

In conclusion, further prospective longitudinal studies, with detailed clinical history and diagnostic methods, are needed to prove a link between *H. pylori* infection and the incidence of asthma.

Compliance with ethical standards

Funding None to declare

Conflict of Interest None to declare

Ethical approval The study was conducted in accordance with ICHGood Clinical Practice guidelines, the Declaration of Helsinki, and local laws and regulations.

Informed consent Informed consent due to the observational study have been obtained in the cited studies

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